Dataset Expocode	**33MW19960330**
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Dataset	**Funding Info:** NOAA **Initial Submission (yyyymmdd):** 2015/03/16 **Revised Submission (yyyymmdd):**
Campaign/Cruise	**Expocode:** 33MW19960330 **Campaign/Cruise Name:** Florida Shelf Lagrangian Experiment (FSLE) **Campaign/Cruise Info:** FSLE **Platform Type:** **CO2 Instrument Type:** **Survey Type:** VOS Underway Measurements **Vessel Name:** Malcolm Baldrige **Vessel Owner:** NOAA **Vessel Code:** 33MW
Coverage	**Start Date (yyyymmdd):** 19960330 **End Date (yyyymmdd):** 19960418 **Westernmost Longitude:** 84.49 W **Easternmost Longitude:** 80.03 W **Northernmost Latitude:** 29.35 N **Southernmost Latitude:** 24.30 N **Port of Call:** Miami, FL
Variable	**Name:** xCO2,w **Unit:** **Description:** PPM
Variable	**Name:** xCO2,a **Unit:** **Description:** PPM
Variable	**Name:** Eq Temp **Unit:** **Description:** Degrees C
Variable	**Name:** Pressure **Unit:** **Description:** millibars
Variable	**Name:** SST (TSG) **Unit:** **Description:** Degrees C
Variable	**Name:** Sal (TSG) **Unit:**

	Description: permil
Variable	**Name:** f(CO2)w, equil **Unit:** **Description:** microatmospheres
Variable	**Name:** f(CO2)w, in situ **Unit:** **Description:** microatmospheres
Variable	**Name:** f(CO2)a **Unit:** **Description:** microatmospheres
Variable	**Name:** dfCO2 **Unit:** **Description:** microatmospheres
Variable	**Name:** QC **Unit:** **Description:** Quality Flag: 2 = good, 3 = questionable, 4 = bad
Sea Surface Temperature	**Location:** Bow thruster room, ~5 m below water line. **Manufacturer:** Seabird **Model:** SBE 21 **Accuracy:** 0.01 C (°C if units not given) **Precision:** 0.001 C (°C if units not given) **Calibration:** Sensor is calibrated annually. **Comments:**
Sea Surface Salinity	**Location:** Bow thruster room, ~5 m below water line. **Manufacturer:** Seabird **Model:** SBE 21 **Accuracy:** 0.005 PSU **Precision:** 0.0002 PSU **Calibration:** Factory calibration. **Comments:**
Atmospheric Pressure	**Location:** In the OCEA lab. **Normalized to Sea Level:** **Manufacturer:** Setra **Model:** 370 **Accuracy:** +/- 0.2 hPa (hPa if units not given) **Precision:** +/- 0.08 hPa (hPa if units not given) **Calibration:** Factory calibration **Comments:**
Atmospheric CO2	**Measured/Frequency:** Yes, 3 readings every hour. **Intake Location:** Bow tower ~10 m above the water line. **Drying Method:** Gas stream passes through a water-jacketed glass condenser at 8 C and a short column of magnesium perchlorate before reaching the analyzer (80% dry). **Atmospheric CO2 Accuracy:** N/A **Atmospheric CO2 Precision:** N/A
Aqueous CO2 Equilibrator Design	**System Manufacturer:** **Intake Depth:** 5 meters **Intake Location:** Bow

Equilibration Type: Showerhead type based on a design by Ray Weiss
Equilibrator Volume (L): 24 l (8 l water, 16 l headspace)
Headspace Gas Flow Rate (ml/min): 100 ml/min
Equilibrator Water Flow Rate (L/min): 15 l/min
Equilibrator Vented: Yes
Equilibration Comments:
Drying Method: Gas stream passes through a water-jacketed glass condenser at 8 C and a short column of magnesium perchlorate before reaching the analyzer (80% dry).

Aqueous CO2 Sensor Details

Measurement Method: Infrared absorption of dry gas.
Method details:
Manufacturer: LI-COR
Model: LI-6251
Measured CO2 Values:
Measurement Frequency: 8 equ and 3 air measurements per hour
Aqueous CO2 Accuracy: +/- 2 microatmospheres
Aqueous CO2 Precision: +/- 1 microatmosphere
Sensor Calibrations:
Calibration of Calibration Gases: Directly traceable to the WMO scale, once per hour.
Number Non-Zero Gas Standards:
Calibration Gases:
ESRL in Boulder, CO.
Std 1: 307.12 ppm
Std 2: 347.81 ppm
Std 3: 410.54 ppm
Comparison to Other CO2 Analyses:
Comments: Instrument mounted in the air-conditioned OCEA Lab.
Method Reference:
http://www.aoml.noaa.gov/ocd/gcc/AOML30.pdf

Equilibrator Temperature Sensor

Location: In OCEA Lab, inserted into equilibrator ~ 10 cm above the bottom.
Manufacturer: YSI
Model: Glass bead encapsulated in a stainless steel probe.
Accuracy: 0.02 C (°C if units not given)
Precision: 0.005 C (°C if units not given)
Calibration: With a Guildline 9540 platinum resistance thermometer.
Comments:

Equilibrator Pressure Sensor

Location:
Manufacturer:
Model:
Accuracy: (hPa if units not given)
Precision: (hPa if units not given)
Calibration:
Comments:

Additional Information

Suggested QC flag from Data Provider:
Additional Comments: 1. Air values recorded during the cruise were highly variable with high values probably caused by land-based source and/or stack gas and have been replaced with the monthly value for April 1996 from the CCCG flask network data at the NOAA ESRL lab in Boulder. Values were from the KEY station in Miami.

Citation for this Dataset:

Rik Wanninkhof, et al, Gas exchange, dispersion, and biological productivity on the west Florida shelf: Results from a Lagrangian tracer study, Geophysical Research Letters, Vol. 24, No. 14, Pages 1767-1770, July 15, 1997 (http://www.ldeo.columbia.edu/~david/duck-rabbit/papers/97GL01757.pdf).

Other References for this Dataset:

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Feely, R. A., R. Wanninkhof, H. B. Milburn, C. E. Cosca, M. Stapp and P. P. Murphy (1998) A new automated underway system for making high precision pCO2 measurements onboard research ships. Analytica Chim. Acta 377: 185-191.

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